difference of said reception echo of both coherent receiving channels;

wherein a helicopter operating according to the ROSAR principle is used for the interferometric radar measurement.

REMARKS

Reconsideration of this patent application is respectfully requested in view of the foregoing amendments and the following remarks.

The Examiner has rejected claims 4 and 7 under 35 U.S.C. 112, first and second paragraphs. Claims 4 and 7 have been amended. Specifically, the format of claim 4 has been changed so that all paragraphs are indented identically. Additionally the elevation direction was clarified. The wave length and phase difference of claim 7 have been more clearly set forth.

The Examiner has objected to the specification under 35 U.S.C. 112, first paragraph. The Examiner states that the present specification and drawings do not adequately support the concept of a transceiver sharply focused in elevation. This transceiver is

now more clearly described on page 10 of the specification. The applicant has also submitted one chapter of M. Skolnik's "Radar Handbook" in Attachment A. It is a standard handbook about radar technology and shows the knowledge of the average person skilled in the art in the field of radar technology. Pages 21.6 and 21.7 explicitly mention the use of focused antennas in synthetic aperture radar applications. This handbook came to the knowledge of the applicant on October 8, 2002 and is also submitted in a supplementary information disclosure statement.

Further, U.S. Patent No. 5,451,957 submitted in Attachment A, discloses a radar device for obstacle warning for a helicopter. The radar device comprises a ROSAR device, arranged at the end of a rotating arm which is combined with a sharply focusing antenna. A sharply focusing antenna is based on the principle of a radar device with real aperture in contrast to a radar device with synthetic aperture. The focusing of the antenna is performed by applying an illumination geometry in elevation with the antenna opening angles. The specification has been amended to include this description. The applicant believes that U.S. Patent No. 5,451,957 demonstrates that an average person skilled in the art knows where to locate the additional antenna and how the antenna is sharply focused in elevation.

The specification has also been amended to described reference letters "Q" and "E".

Claims 4 and 7 have been amended. No new matter has been added. Accordingly, the Applicant submits that the claims as presented are patentable, taken either singly or in combination. Early allowance of the amended claims is respectfully requested.

Respectfully submitted,

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I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10, on the date indicated above, and is addressed to the Assistant Commissioner for Patents, U.S. PTO, Box PCT Application, Washington, D.C. 20231.

MARIA GUASTELLA

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ATTACHMENT "C"

On page 5, please amend paragraph 4 beginning on line 21 and ending on page 6, line 7:

The distance between said arrangement as described above, which is referred to in the following as the INROSAR-system, and the impact point P, which is located at a relative altitude h, is referred to as R. The distance from the antenna A1 of the INROSAR-system to the impact point P amounts to R + ΔR and is therefore by a small amount ΔR greater than the distance R to the antenna A2. The difference ΔR between the two distances can be calculated based on the known wavelength λ of the emitted radar signal and the measured phase difference $\Delta\phi$ of the receiving echo of the two coherent receiving channels. **Impact point Q has a relative altitude lower than impact point P and is on the surface of the Earth E.**

On page 9, please amend the paragraph beginning on line 8 as follows:

In conjunction with an exemplified embodiment according to FIG. 1, the helicopter flies in the normal position, which means that the antennas A1 and A2 are positioned vertically one on top of the other. ΔR is determined based on equation (1). The value of the measured phase difference $\Delta\phi$ of the echo from the antennas

A1 and A2 is ambiguous and can be determined only down to a value ranging between 0 and 2π. Said ambiguity of 2π has to be determined by means of additional measurements. Suitable for said purpose is a transmitter/receiver complementing the INROSAR conception that ~~is~~ comprises a transmitting/receiving antenna that is sharply focussed in elevation D and covers the lower range of the sight angle. **A sharply focussing antenna is based on the principle of a radar device with real aperture in contrast to a radar device with synthetic aperture. The sharply focussed antenna is located at the end of a rotating arm. This focussing is performed by applying an illumination geometry in elevation with the antenna opening angles.** The distance to the impact point on the ground can be clearly determined based on the receive echo because of the sharp focussing in elevation of said transmitting/receiving antenna. The INROSAR-system accepts ~~sai~~ **the** distance as a basic value and calculates the further ambiguities based on the rising distance from the continuous phase transitions. The following calculation example supplies the detailed explanations.

ATTACHMENT "D"

4. (Amended) An arrangement for interferometric radar measurement comprising:

a transmitter disposed on a turnstile of a ROSAR system of a helicopter radar;

at least two assigned coherent receiving antennas having receiving channels disposed on a turnstile of a ROSAR system of a helicopter radar; and

an additional transmitting/receiving antenna sharply focused ~~in the~~ **downward in** elevation **covering a lower range of a sight angle** ~~direction~~.

7. (Amended) A process for interferometric radar measurement comprising the steps of:

assigning two coherent receiving antennas having receiving channels to a transmitter;

calculating a path length difference of two distances to a measured receiving point from ~~the~~ **a** wave length of a transmitted radar signal and of a measured phase difference of a reception echo of both coherent receiving channels;

assigning said two coherent receiving antennas to a transmitter of a ROSAR system;

arranging said two coherent receiving antennas and said transmitter on a rotating turnstile of a radar; and

evaluating signals of a sharply focused transmitting/receiving antenna for determination of ~~a~~ **said** phase difference **of said reception echo of both coherent receiving channels**;

wherein a helicopter operating according to the ROSAR principle is used for the interferometric radar measurement.